Name:

*Mr. Tiénou-Gustafson & Mr. Bielmeier*

Geometry, Period

Due Date:

**Geometry**

**CW & HW**



|  |  |
| --- | --- |
| **Objectives** | 4.2 Compare quadratic graphs in form y =ax2 + c with the parent quadratic function |

**Intro to Vertical Transformations**

1. Press Y=. Enter the **parent quadratic function** in the Y1row:. Graph this “**parent graph**.”

* Does this function have a minimum or a maximum? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* What is the vertex? \_\_\_\_\_\_\_\_\_\_\_\_\_

1. Keep the parent function in the Y1 row. In the Y2row of your calculator: + 1.

* What is the vertex of the new graph? \_\_\_\_\_\_\_\_\_\_\_\_\_
* Describe what happened to the parabola from the parent graph to the new graph :

1. Keep the parent function in the Y1 row. Change the Y2row of your calculator: - 2.

* What is the vertex of the new graph? \_\_\_\_\_\_\_\_\_\_\_\_\_
* Describe what happened to the parent graph:

**Types of Quadratic Transformations ()**

|  |  |
| --- | --- |
| **Transformation: Shift \_\_\_\_\_\_\_\_ when**  1) Change the second graph:  2) Sketch the transformation: | **Transformation: Shift \_\_\_\_\_\_\_\_ when**  1)Change the second graph:  2) Sketch the transformation: |

1. Does it work with more complex quadratics? Graph the following:
   * + What is the vertex?\_\_\_\_\_\_\_\_\_\_\_\_\_
     + What is the vertex?\_\_\_\_\_\_\_\_\_\_\_\_\_
   * Describe the transformation:

|  |  |
| --- | --- |
| 1. Which describes the correct transformation from the parent graph to   A. shift down 3 units (negative y direction)  B. shift up 3 units (positive y direction)  C. shift left 3 units (negative x direction)  D. shift right 3 units (positive x direction) | 1. How would the graph of the function y = x2 + 4 be affected if the function were changed to y = x2 – 3?   A. The graph would shift 4 units up.  B. The graph would shift 3 units down.  C. The graph would shift 7 units down.  D. The graph would shift 1 unit down. |

1. **Predict**: what would be the transformation be from to . (Notice: the only change is in the “c” value.) **Prediction:** 
   * Now test your prediction! Graph both (in the Y1 line and then the Y2 line). Find the vertex of each. (Hint: you can switch between the graphs of the two lines using your up & down arrow.)
   * Y1 vertex: \_\_\_\_\_\_\_\_\_\_\_ Y2 vertex:\_\_\_\_\_\_\_\_\_\_ Does this prove your prediction right? Why or why not?

***So… I heard there’s a quiz on Monday. What do I need to be able to do?***

1. Find the solution to a quadratic three different ways: **8**

|  |  |  |
| --- | --- | --- |
| **1. Factoring when y = 0**  - Use your method of choice to find binomial factors & the solution set. | **2. Table**  - Find the x value(s) where y=0 (using 2nd graph fuction) | **3. Graphing**  - Make a graph. Circle the  x-intercept(s) & find the values. |
| **Factors: ( )( ) = 0**  **Solution set: x =** | |  |  | | --- | --- | | X | Y | | -4 |  | | -2 |  | | 0 |  | | 2 |  | | 4 |  |   **Circle the solution(s).** | **http://www.crestviewlocal.k12.oh.us/chs/staff/mcc/images/coordinate%20plane%2010x10.bmp** |

1. Use your graphing calculator to do the following: Practice with **4**
   1. Determine if the graph opens upward or downward:
   2. Find the solution or solutions (x-intercepts or zeros):
   3. Find the vertex:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Label as min or max:
   4. Sketch a graph that is consistent with these points:
2. Describe transformations:
   1. How would the parent graph (y = x2 ) be affected if the function changed to y = x2 - 2?

**Shift up/down** (circle one) **by \_\_\_\_\_\_\_\_\_\_\_\_\_**

* 1. How would the graph of y = x2 +3x -2 change if the function were changed to y = x2 +3x+ 1?

Shift…